

CONFIDENTIAL

DRAFT WORK PLAN

GROUNDWATER INVESTIGATION
SPDES PERMIT NO. NY 0110311

FEBRUARY 26, 1999

Prepared For:

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DRAFT WORK PLAN
GROUNDWATER INVESTIGATION

1. INTRODUCTION

This document presents a work plan to delineate potential polychlorinated biphenyls (PCBs) in groundwater at the Roth facility at 6223 Thompson Road, Town of Dewitt, Onondaga County, New York (Site) (Figure 1). The Work Plan is being prepared in compliance with the Modification Consent Order (Order) (Case No. R7-0996-96-08) between Roth and the State of New York Department of Environmental Conservation (NYSDEC) dated March 13, 1998 related to SPDES Permit No. New York – 0110311.

The Plan has been designed to facilitate the following:

- Evaluation of the extent and degree of dissolved PCBs in groundwater beneath the Site, if any;
- Evaluation of the potential groundwater exposures points in the vicinity of the Site;
- Evaluation of the fate and transport of PCBs to the potential groundwater exposure points; and
- Evaluation of the need for a remediation program for groundwater, if any.

2 SCOPE OF WORK

The scope of work includes the following tasks:

- Groundwater Investigation (including quarterly groundwater monitoring),
- Exposure Assessment,
- Risk-Based Concentration Screening, and
- Report

A more detailed description of each of these tasks is presented in the following sections.

2.1 Groundwater Investigation

The Site is currently encircled by functional groundwater monitoring well network that will be in the groundwater investigation. These include (Figure 2):

- B107-OW,
- B108-OW,
- B290-OW,
- B403-OW,
- B402-OW,
- B291-OW,
- B280-OW,
- B401-OW,
- B282-OW, and
- B281-OW.

Data from a combination of existing monitoring wells (listed above) and one newly installed monitoring well located downgradient from the Plant 1 raw material storage area (MW-3) would sufficiently characterize the quality of the groundwater with respect to PCBs. The combination of existing monitoring wells and proposed monitoring well MW-3 would be sufficient to characterize the Site because historic groundwater gradient evaluations indicate that the wells would be downgradient of all the potential source areas on the Site (raw materials storage). Groundwater flow has been interpreted to be generally toward the northeast (Figure 3).

It may be possible to rehabilitate and incorporate the following groundwater monitoring wells into the groundwater investigation program:

- MW-1,
- MW-2, and
- B293-OW

If these wells can be effectively rehabilitated, they will be included in the monitoring well network.

Soil Sampling

Two soil samples will be collected from each of four select site locations to characterize the saturated zone matrix for those properties that influence the potential for groundwater transport of PCBs. The soil parameters that will be evaluated so that the potential for transport of PCBs in groundwater can be assessed include:

- porosity,
- bulk density, and
- total organic carbon (TOC).

Soil sampling locations are depicted in Figure 4 including at the location of proposed monitoring well MW-3 (SB-1) and three additional locations (SB-2, SB-3, and SB-4). The total depth of the borings is not expected to exceed twenty feet.

Well Installation

As previously indicated, groundwater monitoring well MW-3 will be installed at the locations shown on Figure 2. The boring drilled for this new well will be advanced to a maximum depth of 20 feet below ground surface. The well will be constructed generally as follows:

- installation of 15 feet of 2-inch diameter PVC screen (0.01 inch machine slot);
- installation of 5 feet of 2-inch diameter PVC casing;
- installation of 16 feet of appropriately sized gravel pack;
- installation of a minimum 2-foot thick bentonite seal above the gravel pack;
- installation of 5% bentonite grout from the top of the bentonite seal to near ground surface;
- installation of a sealable locking cap and lock installed on the well-head; and
- completion of the top of the well within a bolt-down watertight traffic-bearing road box.

Well Development and Rehabilitation

The newly installed well will be developed by surging and bailing techniques so that the groundwater in the wells are relatively free of suspended sediment. If possible, monitoring wells MW-1, MW-2, and B293-OW will also re-developed by surging and bailing and upgraded as necessary to secure the well heads.

If these wells are effectively rehabilitated, they will be included in the groundwater investigation.

Surveying

A New York State licensed surveyor will survey the newly installed well. Elevation of well head will be related to the currently existing site elevations.

Groundwater Gauging and Sampling

All Site groundwater-monitoring wells (new, existing, and rehabilitated) will be gauged during the four quarterly sampling events. Each well will be gauged to an accuracy of +/-0.01 foot.

Of these wells, the following wells will be included in the quarterly groundwater sampling program:

- B401-OW,
- B291-OW,
- B402-OW,
- B403-OW,
- B290-OW,
- B286-OW,
- B281-OW,
- B107-OW,
- MW-1 (if this well can be rehabilitated),
- MW-2 (if this well can be rehabilitated), and
- MW-3 (proposed new monitoring well).

The monitoring wells will be sampled by low flow techniques (as described in USEPA, 1996). Dedicated sample tubing will be installed into each of the monitoring wells at least one week prior to sample collection. The intake of the tubing will be fixed at a depth that is at the center of the screened interval of the monitoring well.

The monitoring wells will be purged at a low flow using a peristaltic pump. To the degree possible, the flow will be controlled in such a way to limit drawdown in the well to <0.1 meter. Indicator parameters (pH, specific conductance, oxidation/reduction potential [redox], dissolved oxygen, turbidity) will be monitored using an in-line water quality meter.

The monitoring wells will be sampled on four occasions. During each sampling event, one duplicate and a matrix/matrix spike duplicate pair will be collected for assessment of quality assurance/quality control. In addition, each field sample will include two times the minimum volume necessary for analysis.

Each sample will be labeled, packed on ice in a shipping cooler and shipped by courier to a New York State certified laboratory or laboratory proven satisfactory to NYSDEC for analysis of PCBs by EPA Method 8082. If upon receipt and review of analyses, any of the samples contain PCBs, the samples containing PCBs will be laboratory filtered and

reanalyzed for PCBs by EPA Method 8082. Analysis of filtered samples will be important in assessing that fraction of the PCBs in groundwater that are mobile.

Slug Testing

Slug tests will be performed in four wells to calculate the hydraulic conductivity of the surficial water-bearing zone. Hydraulic conductivity is a parameter necessary for evaluation of the potential for PCBs to migrate via groundwater transport.

Slug tests will be performed by removing a slug of water from the tested monitoring well and monitoring the recharge of the water in the monitoring well over time. Recharge will be monitored with a pressure transducer and data logger. Data will be interpreted using computer-aided slug test interpretation software (e.g., AQTESOLV).

Decontamination

Drilling equipment (augers and split spoons) and development equipment (surge blocks and bailers) will be decontaminated between borehole/well locations by steam cleaning. Split spoons will be decontaminated between samples by scrubbing with a detergent/distilled water solution and double rinsing with distilled water. Water level measuring equipment will also be decontaminated between wells by scrubbing with a detergent/distilled water solution and double rinsing with distilled water. Sampling equipment (tubing) will not require decontamination because it will be dedicated to each well. The aboveground sections of sample tubing will be discarded after sampling each well.

Waste Handling

Soil produced during the drilling program will be disposed off-site at an approved landfill. Fluids produced during decontamination will be contained and treated on-site in the wastewater treatment plant (if the permit allows) or treated off-site at an approved treatment facility.

2.2 Exposure Assessment

The objective of an exposure assessment for this project is to estimate the type and magnitude of potential current and future hypothetical exposures to PCBs from current facility operations. The exposure assessment will include the following three steps:

- characterization of the exposure setting;
- identification of the potential groundwater exposure pathways; and
- quantification of the potential exposures.

Exposure Setting

The exposure setting will be described including such parameters as:

- climate,
- meteorology,
- geologic setting,

- vegetation,
- soil type,
- groundwater hydrology,
- location and description of nearby surface water, and
- potential exposed populations

Groundwater Exposure Pathway Assessment

A groundwater exposure pathway assessment will be performed to determine whether there are any potential links between the sources and potential receptor populations. The groundwater exposure pathway assessment will include four elements:

- A source and mechanism of PCB release.
- A retention or transport medium (groundwater).
- A point of potential human contact with the potentially impacted media (exposure point).
- An exposure route at the potential exposure point.

Quantification of Potential Exposures

In order to predict the potential off-site exposure concentrations, groundwater solute transport modeling will be performed. An analytical groundwater solute transport model will be employed (e.g., WINTRANS or MYGRT) for this evaluation. Assumptions and input used in the modeling will be outlined in a letter presented to NYSDEC for review and approval prior to the work. Conservative assumptions will be used which will tend to overestimate the predicted endpoint concentrations.

2.3 Risk-Based Concentration Screening

Predicted exposure point concentrations will be compared with the most current USEPA Region III Risk Based-Concentrations tables to determine whether corrective action may be necessary for groundwater.

2.4 Report

The above activities will be documented in a report submitted to NYSDEC. The report will include:

- a description of field activities,
- a summary of analytical data,
- laboratory reports,
- results of the exposure assessment,
- results of the solute transport modeling, and
- conclusions regarding the need for remedial action due to PCBs in the groundwater.

3 SCHEDULE

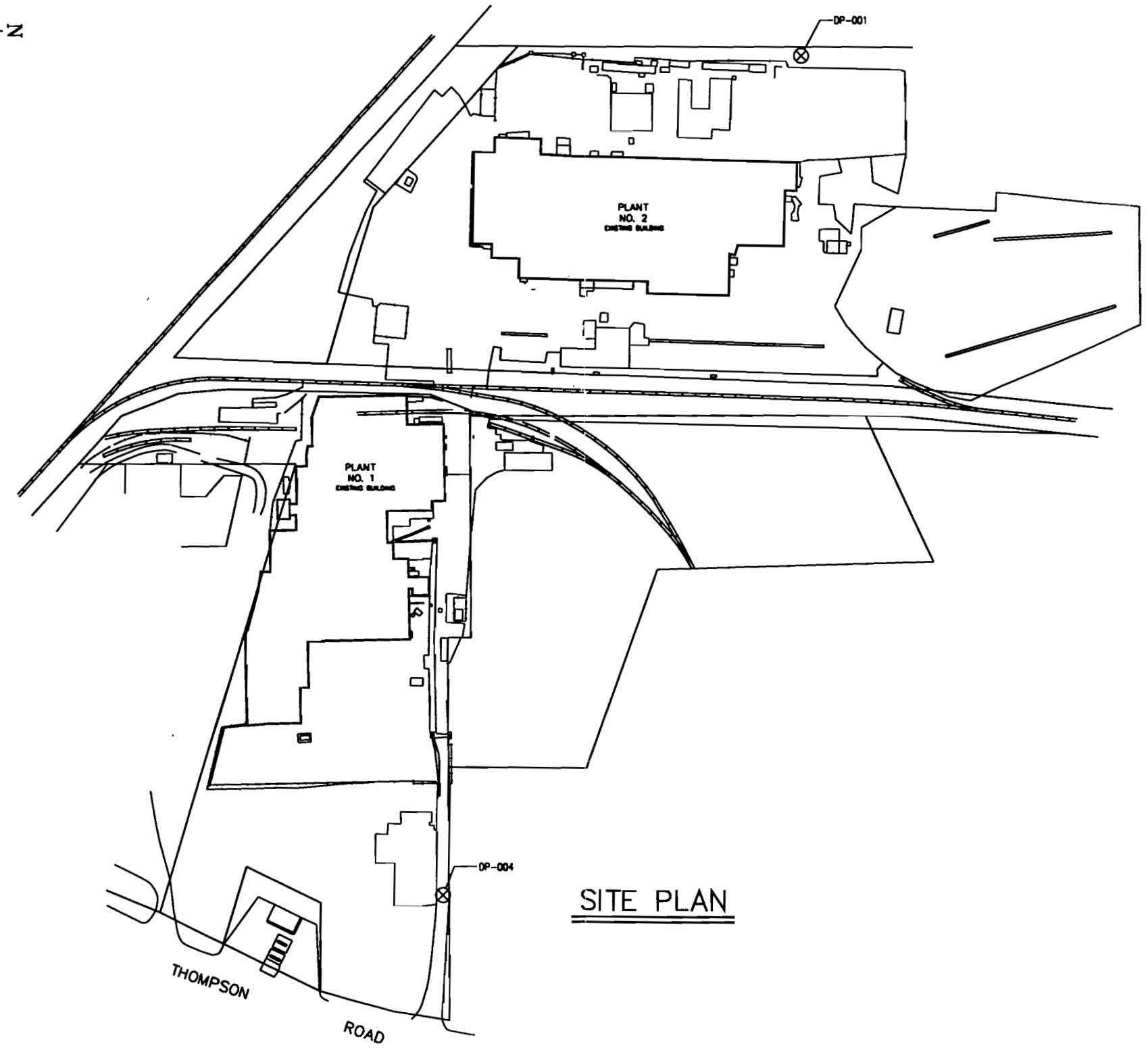
The schedule of activities for the groundwater investigation will be those outlined in Appendix A (Schedule of Compliance) of the Order. The schedule will be as follows:

TASK	SCHEDULE
Initiate Implementation of Investigation Plan	Within 30 days of NYSDEC approval of Investigation Plan
Complete Boring/Monitoring Well Installation	Within 60 days of initiating implementation
Collect Quarterly Groundwater Data and Submit Quarterly Data to NYSDEC	Beginning 30 days after monitoring well installation
Submit Summary Report of Results and Risk Evaluation	Within 45 days 4 th quarter of groundwater sampling

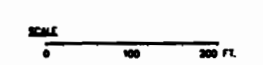
4 REFERENCES


United States Environmental Protection Agency. 1996. Robert W. Puls and Michael J. Barcelona. Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. *Ground Water Issue*. USEPA Office of Research and Development and Office of Solid Waste and Emergency Response. EPA/540/S-95/504. April.

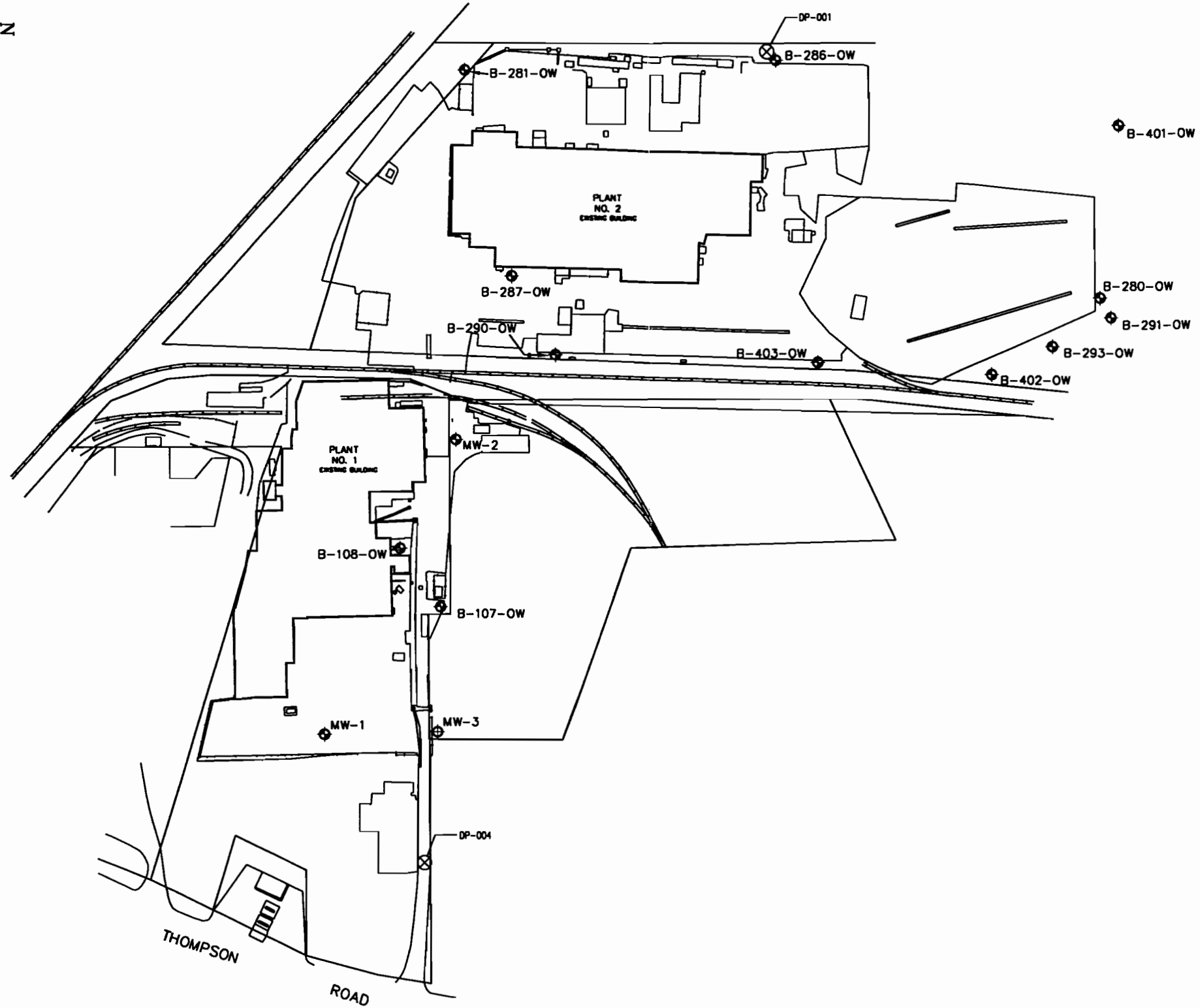
FIGURES



LEGEND
DP-001 - OUTFALL OR DISCHARGE POINT

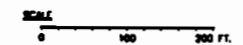



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NO.	DESCRIPTION			NO.	DESCRIPTION	DATE	DR.	CH.		DATE	CIVIL ENG		ELECT ENG	MECH ENG	PROD ENG	DR.	DATE	ROTH BROS. E. SYRACUSE, NY		SITE MAP PLANTS NO. 1 & 2 BUILDING LOCATIONS & PROPERTY LINES			
																			 D&I, Inc. / Photo Services Four Gateway Center 12th floor Pittsburgh, Pa 15222 phone: 412-785-3843 fax: 412-785-0805		PROJECT NO. 16068	DRAWING NO. FIGURE 1	REV. A



LEGEND

- DP-001 - OUTFALL OR DISCHARGE POINT
⊕ - EXISTING MONITORING WELLS
⊙ - PROPOSED MONITORING WELLS



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NO.	DESCRIPTION				NO.	DESCRIPTION	DATE	DR.	CL.		SIGN	DATE		ROTH BROS. E. SYRACUSE, NY		SITE WELL LOCATIONS			
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		△			△						ELECT ENG	DR. JJO DATE 10/27/98							
		△			△						MECH ENG	CH. DATE							
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TITLE:
GROUNDWATER GRADIENT MAP
(JUNE 17, 1997)

NO.	REVISION	BY	APPR.	DATE

SCALE 1" = 200'

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PROJECT NO: 18184

DWN: GJA

6/23/97

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ROTH BROS.
SYRACUSE NY

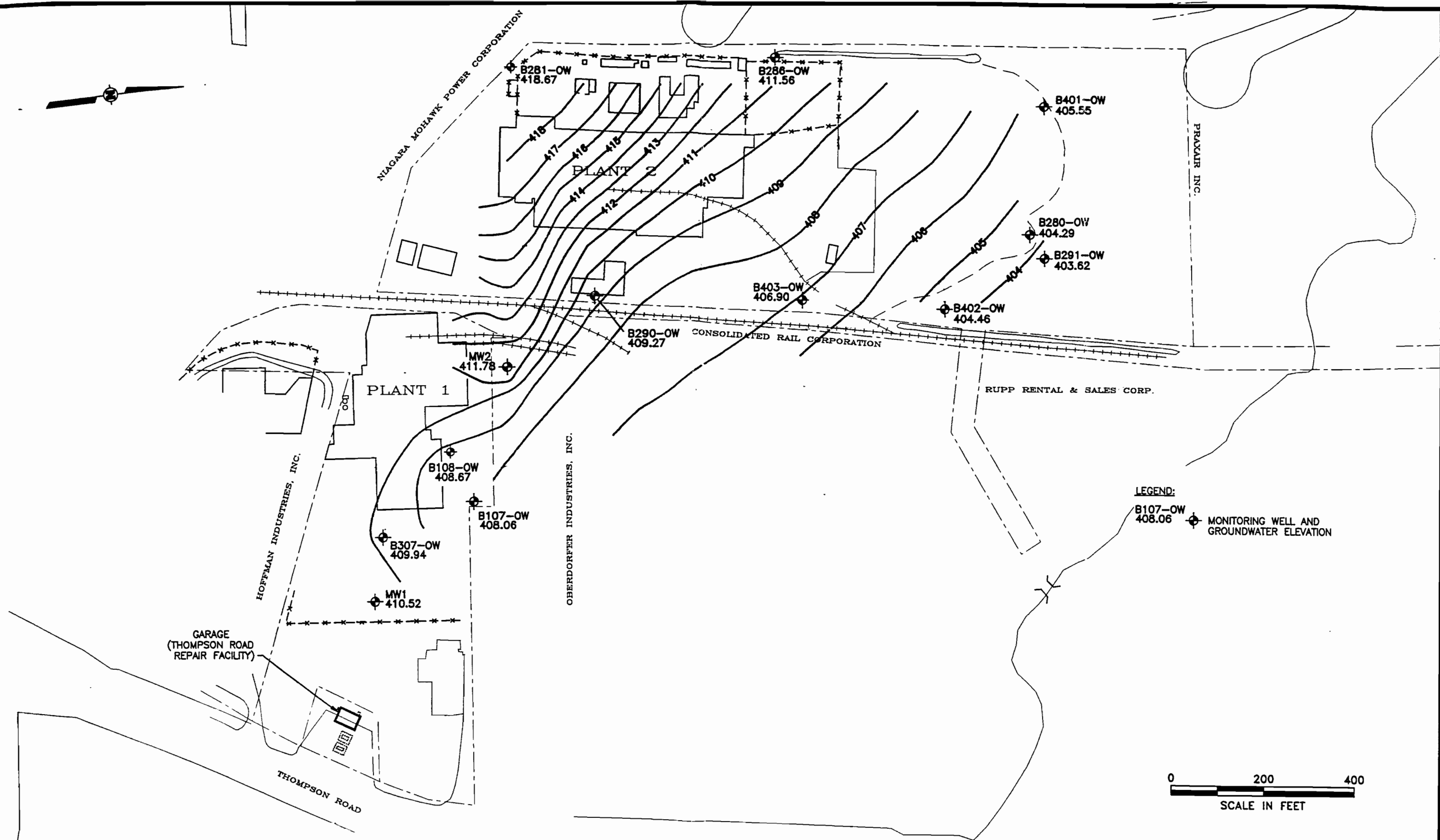
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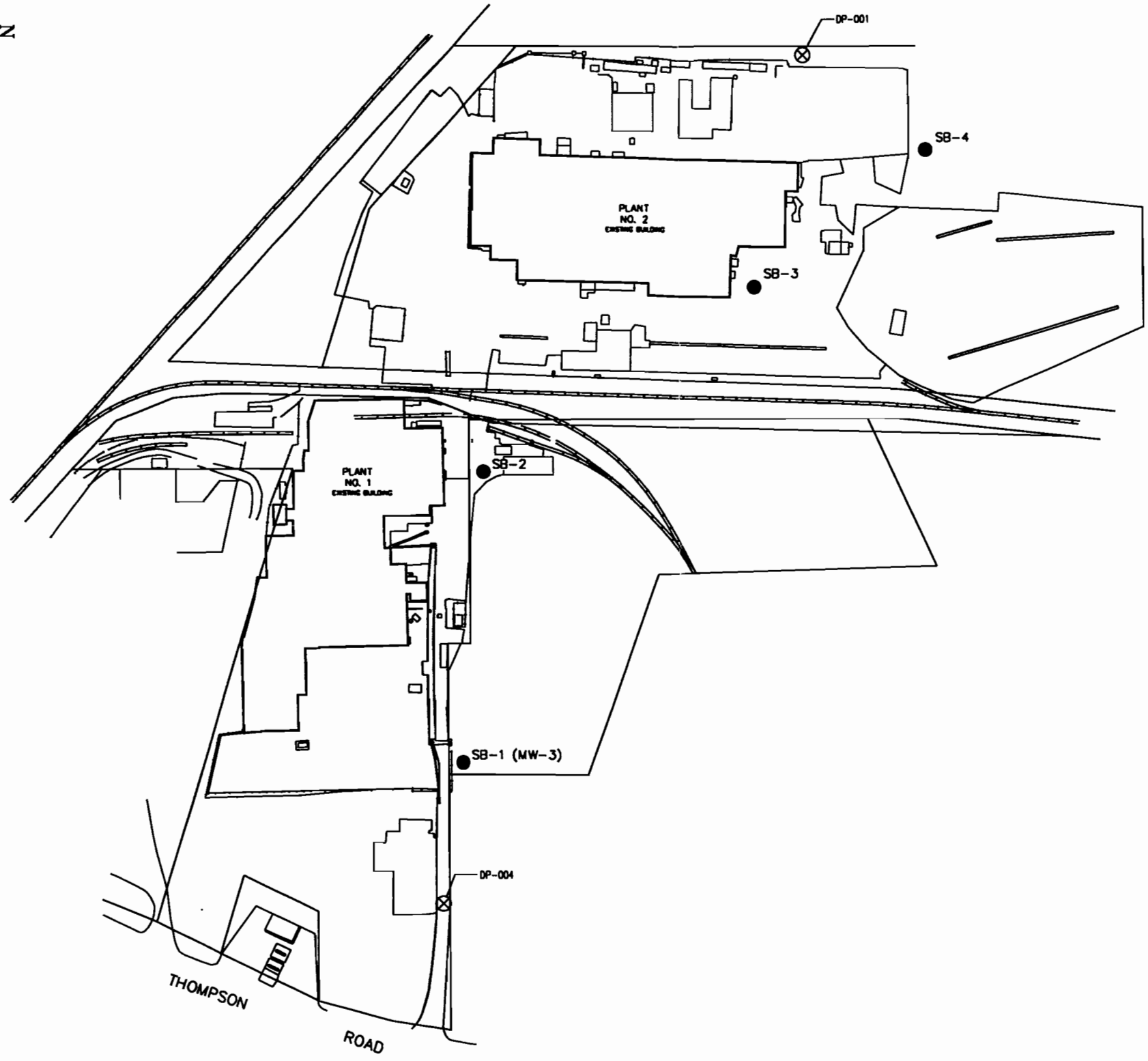
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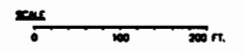
FIGURE 3
FOIL 207750


REV:
A





LEGEND
DP-001 - OUTFALL OR DISCHARGE POINT
● - PROPOSED SOIL BORING LOCATION



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NO.	DESCRIPTION				NO.	DESCRIPTION	DATE	DR.	CH.	SIGN	DATE			ROTH BROS. E. SYRACUSE, NY	PROJECT NO. 16068	DRAWING NO. FIGURE 4	REV. A
												SCALE 1/8" = 1'-0"		PROPOSED SOIL BORING/ SAMPLING LOCATIONS			
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												CH. DATE					
												APP. DATE					

DWG Name: F:\BODYS\ENGR\CA\Draws\FIGURE 4.dwg Updated By: ECCDA
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